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# Provider Bulletin

Reference: B0700241

December 2007

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## Immunization Benefits

This bulletin provides a summary of the Colorado Medicaid immunization benefits and billing guidelines for adults and children. The Immunization Quick Coding Reference (Page 9) contains information regarding valid ages and reimbursement rates for each covered Current Procedural Terminology (CPT) code.

The Recommended Childhood Immunization Schedule (Page 12) indicates the recommended ages for routine administration of vaccines for children ages 0 through 18. The Recommended Adult Immunization Schedule (Page 15) indicates the recommended ages for administration of vaccines for adults. Immunizations for the sole purpose of international travel are not a benefit for Colorado Medicaid clients.

Any qualified Colorado Medicaid enrolled provider including but not limited to private practitioners, public health agencies, Rural Health Centers, hospital outpatient clinics, and Federally Qualified Health Centers may provide immunization services.

Providers must use CPT procedure codes to submit all immunization claims. Providers should verify the accuracy of claims submitted for DTaP, DT Tdap, and Td immunizations. Accurate coding is vital. Colorado Immunization Program auditing shows a significant number of billing errors resulting in late payments.



Denver Club Building  
518 17th Street, 4th floor  
Denver, Colorado 80202

## ACS Contacts

Billing and Bulletin Questions  
303-534-0146  
1-800-237-0757

Claims and PARs Submission  
P.O. Box 30  
Denver, CO 80201

Correspondence, Inquires, and Adjustments  
P.O. Box 90  
Denver, CO 80201

Enrollment, Changes, Signature authorization and Claim Requisitions  
P.O. Box 1100  
Denver, CO 80201

## **Immunizations for adults ages 21 and older**

### Benefit information

Immunizations for adults ages 21 and older are a Colorado Medicaid benefit when medically necessary. Medical necessity may include the need to enter the work force, or to attend school.

### Billing information

Providers must submit claims for adult immunization services on the Colorado 1500 or 837 professional claim form. If an immunization is the only service rendered, providers may not submit charges for an Evaluation/Management (E/M) service. A \$2.00 administration reimbursement is automatically added to the payment for each vaccine. If E/M services are rendered in addition to the immunization administration, enter the diagnosis and appropriate procedure code on the claim.

### Reimbursement rate

Adult immunizations are reimbursed using the following formula:

Average Wholesale Price (AWP) + 10 percent + \$2.00 for administration

## **Immunizations for children ages 20 and under**

### Benefits information

Immunizations for children age 20 and under are a Colorado Medicaid benefit when medically necessary. Medical necessity may include: when needed to enter the work force, or to attend school.

Covered CPT codes are listed on page 9. Benefits are as follows:

- An Administration, Recordkeeping and Tracking (ART) fee only for vaccines available through the Vaccines for Children (VFC) and Colorado Immunization Programs. The vaccine itself is not reimbursed through Colorado Medicaid.
- Vaccine and administration for covered vaccines not available through the VFC and Colorado Immunization Programs. The administration fee of \$2.00 is included in the reimbursement for the vaccine CPT code.

The Colorado Department of Public Health and Environment (CDPHE) furnishes some vaccines to medical providers at no cost through two programs, the federal VFC Program and the Colorado Immunization Program.

### **1. VFC Program**

Children under age 19 are eligible to receive vaccines at no cost through the VFC Program if they are:

- On Medicaid,
- Uninsured,
- American Indian/Native Alaskan, or
- Underinsured (only eligible when provided by RHCs or FQHCs. Children are considered underinsured if their insurance does not provide immunizations as a regular benefit).

## 2. Colorado Immunization Program

The Colorado Immunization Program furnishes vaccines at no cost to providers for Colorado Medicaid clients who are 19 and 20 years of age. The vaccines are provided only for clients on Medicaid at the time of service. The free vaccine obtained through the Colorado Immunization Program may be used only for Colorado Medicaid clients ages 19 and 20.

CDPHE monitors vaccine usage by comparing the number of doses billed to Colorado Medicaid with the number of vaccine doses shipped to providers. Only doses billed to and paid for by Colorado Medicaid are recognized. It is important that providers use accurate procedure codes and bill vaccine doses to Colorado Medicaid as soon as possible after the vaccine is administered.

Vaccines available from the VFC and the Colorado Immunization Programs are shown on page 9.

### Provider Participation in CDPHE Vaccine Programs

Participation in the VFC and Colorado Immunization Programs is strongly encouraged by Colorado Medicaid. Providers, including but not limited to private practitioners, managed care providers, public health agencies, RHCs, hospital outpatient clinics, and FQHCs, who wish to participate in the immunization programs must enroll with the CDPHE.

Information about the CDPHE immunization programs is available at:

Colorado Department of Public Health and Environment  
Immunization Program  
DCEED-IMM-A4  
4300 Cherry Creek Drive South  
Denver, Colorado 80246-1530  
Phone 303-692-2798/303-692-2363

Providers are required to give clients the federally required "Important Information Statement" or, for vaccines covered by the national Vaccine Injury Compensation Program, the appropriate "Vaccine Information Statement". These statements may be downloaded from the Centers for Disease Control and Prevention (CDC) website at:

<http://www.cdc.gov/nip/publications/VIS/default.htm>.

### Billing information

Immunizations can be given during an Early Periodic Screening Diagnosis and Treatment (EPSDT) periodic screening appointment, an EPSDT inter-periodic visit, or any other medical appointment.

- If immunizations are given during an EPSDT periodic screening appointment or during any other medical care appointment, referred to as an EPSDT inter-periodic visit, submit claims on the Colorado 1500 or 837 Professional (P) using the appropriate Evaluation and Management CPT and diagnosis codes which may include "Need for Vaccination" codes, V03.0 through V06.9. Practitioners must maintain records that document the full nature and extent of the services rendered during this visit.
- If immunization is the only service provided to a Colorado Medicaid client age 20 and under, the service must be billed on the Colorado 1500 or 837P. Practitioners should use the appropriate Evaluation and Management CPT and diagnosis codes, which may include "Need for Vaccination" codes, V03.0 through V06.9.

## Reimbursement rate

- **If the vaccine is not available by the VFC and Colorado Immunization Programs, providers are reimbursed using the following formula:**

Average Wholesale Price (AWP) + 10 percent + \$2.00 for administration

- If the vaccine is available through the VFC or Colorado Immunization Program, Colorado Medicaid pays providers an Administration, Recordkeeping and Tracking (ART) fee for immunizations. Because the vaccine is available at no cost through these programs, providers who choose to obtain vaccine from other suppliers may not request nor receive reimbursement above the ART payment. Vaccines available from the VFC and Colorado Immunization Programs are shown on page 9.
  - Private Practitioners – ART Payment  
Practitioners billing for immunizations for Colorado Medicaid enrolled children (under age 21) when vaccine is available at no-cost from the CDPHE VFC Program are paid an ART fee of \$6.50 for each immunization.
  - Public Health Agencies – ART Payment  
Public health agencies are eligible to receive vaccines at no cost from the CDPHE VFC Program, for administration to eligible children under age 21. The clinic may bill and be reimbursed the \$2.00 ART fee for each immunization.

## **Provider Specific Billing Instructions**

### Managed Care Programs

Colorado Medicaid Health Maintenance Organization (HMO) or Prepaid Inpatient Health Plan (PIHP) enrolled clients must receive immunization services from the HMO or PIHP and providers may not bill Medicaid for vaccines provided to these clients. For clients enrolled in the Primary Care Physician Program (PCPP), the primary care physician (PCP) should provide the immunization services.

### Outpatient, Emergency Room, or Inpatient Hospital

Immunization administration may be billed as part of an outpatient or emergency room visit when the visit is for medical reasons. Outpatient or emergency room visits cannot be billed for the sole purpose of immunization administration. Administration of an immunization at the time of an inpatient stay is included in the DRG.

### Federally Qualified Health Centers (FQHCs) and Rural Health Centers (RHCs)

FQHCs and RHCs may bill an encounter rate for only administering an immunization. Encounters for other reasons may include the administration of the immunization, but the immunization administration does not change the reimbursement to the FQHC or RHC for the original encounter.

### Nursing Facilities

Nursing facility residents may receive immunizations if ordered by their physician. The skilled nursing component for immunization administration is included in the facility's rate. The vaccine itself may be billed directly to Colorado Medicaid by a Colorado Medicaid enrolled pharmacy. The pharmacy must bill the appropriate National Drug Code (NDC) for the individual vaccine dose under the client's Colorado Medicaid ID.

## Home Health

A client confined to the home and receiving home health services may receive an immunization if the administration is part of a normally scheduled home health visit. A home health visit for sole purpose of immunization administration is not a benefit. The pharmacy bills the vaccine as an individual dose under the client's Colorado Medicaid ID. The home health agency may not bill for the vaccine.

## Alternative Health Care Facilities (ACFs) / Group Homes

Residents of an ACF may receive immunizations from their own physician. They may also receive vaccines under home health as stated above in the home health guideline.

Colorado Medicaid does not pay for home health agencies, physicians, or other non-physician practitioners to go to nursing facilities, group homes, or residential treatment centers to administer immunizations (for example: flu vaccines) to groups of clients.

## **Medicare crossover claims**

For Medicare crossover claims, Colorado Medicaid pays the Medicare deductible and coinsurance or Colorado Medicaid allowed benefit minus the Medicare payment, whichever amount is less. If Medicare's payment for immunization services is the same or greater than the Colorado Medicaid allowable benefit, no additional payment is made. If Medicare pays 100% of the Medicare allowable, Colorado Medicaid makes no additional payment.

## **Additional Information on Synagis Immune Globulin and Influenza Vaccine**

Colorado Medicaid receives numerous questions regarding Synagis immune globulin and influenza vaccine. The following information addresses these questions and applies only to Synagis immune globulin and influenza vaccine. Please note that all benefit, billing, and reimbursement information prior to this section also applies to Synagis immune globulin and influenza vaccine.

### **Synagis Immune Globulin**

Synagis (Palivizumab) is used to prevent serious lower respiratory tract disease caused by Respiratory Syncytial Virus (RSV) in pediatric patients at high risk for RSV disease. Synagis is administered by intramuscular injections, at 15 mg per kg of body weight, once a month during expected periods of RSV frequency in the community.

When Synagis is administered in a Provider's Office or Outpatient Hospital:

#### ***Prior Authorization is not required if:***

- The client is under age 3 at the start of the current RSV season or at the time of the first injection for the current RSV season, with a chronic lung or respiratory condition, and was either full term or premature.
- The client was born prematurely, less than 28 weeks, and is under the age of 12 months at time of first injection, with or without a chronic lung or respiratory condition (e.g., ICD9 765.0).
- The client was born prematurely, 29-35 weeks, and is under the age of 6 months at time of first injection, with or without a chronic lung or respiratory condition (e.g., ICD9 765.1).

#### ***Prior authorization is required for:***

- Children ages 3 or older at the start of each RSV season, or

- Children who do not meet the above criteria but whose physician believes that they medically require Synagis.
- The client's risk is increased due to one or more of the following conditions, as recommended by the American Academy of Pediatrics:
  - Body Mass <5kg
  - Congenital Heart Disease
  - Low Socioeconomic Status
  - T-cell immunodeficiency
  - Passive smoke exposure
  - Birth within 6 months before onset of RSV season
  - Day care attendance
  - Two or more individuals sharing a bedroom
  - School age siblings
  - Multiple births

Providers administering Synagis in the office must furnish the immune globulin and must use CPT code 90378 to bill Synagis on the CO 1500 or 837 professional claim format. Bill one unit per 50mg vial; limit 6 units per day. Providers may not ask clients to obtain Synagis from a pharmacy and bring it to the practitioner's office for administration. Outpatient hospitals should bill using the appropriate revenue code.

Prior Authorization Requests (PARs) should be sent to:

PARs  
P.O. Box 30  
Denver, CO 80201-0030

For questions, providers may contact the fiscal agent's prior authorization line at 303-534-0279 or 1-800-237-7647

When Administered At Home Or In a Long-Term Care Facility:

A prior authorization is required when Synagis is dispensed by a pharmacy and administered at home or in a long-term care facility. The prior authorization will be approved for six months for a diagnosis of RSV or the prevention of RSV. Only physicians and pharmacists from long-term care pharmacies and infusion pharmacies, who are acting as the agents of the physicians, may request a prior authorization. When the prior authorization is approved, the pharmacy should bill Colorado Medicaid electronically at the point of sale. Prior authorizations may be requested by calling or faxing a Pharmacy Prior Authorization Request (PAR) to the ACS prior authorization help desk:

Phone number: 1-800-365-4944

Fax number: 1-888-772-9696

**Influenza Vaccine**

Billing information

Influenza vaccine is a benefit for children and adults. Valid CPT codes are as follows:

CPT Code	Valid Ages	Reimbursement for children (under age 21)	Reimbursement for adults (age 21 and older)
90655	6 – 35 months	\$6.50 (\$2.00 for health departments)	Not a benefit
90656	3 years and above	\$6.50 (\$2.00 for health departments)	\$18.57
90657	6 – 35 months	\$6.50 (\$2.00 for health departments)	Not a benefit



CPT Code	Valid Ages	Reimbursement for children (under age 21)	Reimbursement for adults (age 21 and older)
90658	3 years and above	\$6.50 (\$2.00 for health departments)	\$14.62
90660	2 – 20 years	\$6.50 (\$2.00 for health departments)	Not a benefit

CPT codes 90465 – 90474 for vaccine administration are not a benefit. Please note that CPT code 90660, Influenza virus vaccine, live, for intranasal use (brand name FluMist) is not a benefit for adults aged 21 or older. For more information on FluMist, please see the Centers for Disease Control Vaccine Information Statement at:

<http://www.cdc.gov/nip/publications/VIS/vis-flulive.pdf>

For clients 20 and under, influenza vaccine reimbursement is limited to an Administration, Recordkeeping and Tracking (ART) fee of \$6.50 for private practitioners and \$2.00 for public health agencies. Because influenza vaccine is available at no cost through the Vaccines for Children (VFC) and Colorado Immunization Programs, providers who choose to obtain vaccine from other suppliers may not request nor receive reimbursement in addition to the ART payment.

Free influenza vaccine is available through the VFC Program and the Colorado Immunization Program for Colorado Medicaid enrolled children (under age 21) meeting any of the following criteria:

- Children aged 6 months through 23 months
- Children and adolescents aged 6 months through 18 years with chronic disorders of the pulmonary or cardiovascular systems, including asthma
- Children and adolescents aged 2 through 18 years who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or by HIV)
- Children and adolescents aged 2 through 18 years who are receiving long-term aspirin therapy and may therefore be at risk for developing Reye's Syndrome after influenza
- Children and adolescents aged 2 through 18 years who are residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions
- Adolescent females aged <19 years who will be pregnant during influenza season
- Children (6 months – 18 years) who have any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration
- Children and adolescents aged 2 years through 18 years who are household contacts or out-of-home caregivers of persons in the following high-risk groups:
  1. Children less than 2 years old
  2. Adults aged 50 years or older
  3. Persons with chronic disorders of the pulmonary or cardiovascular systems, including asthma

4. Persons who have required regular medical follow-up or hospitalization during the preceding year for chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or by HIV)
5. Children and adolescents ages 2 through 18 years who are receiving long-term aspirin therapy and may therefore be at risk for developing Reye syndrome after influenza
6. Residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions
7. Women who will be pregnant during influenza season
8. Persons who have any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration

For questions or additional information regarding the VFC Program, please contact Rosemary Spence at 303-692-2798.

#### Who should get influenza immunization?

Influenza immunization is strongly recommended for individuals who are six months of age or older and because of age or underlying medical conditions are at increased risk for complications of influenza. Health care workers and other contacts (including household contacts) of individuals in high-risk groups should also be vaccinated.

High-risk groups include:

- Children who meet the criteria for VFC influenza vaccine (see previous section)
- Persons 65 years of age and older
- Persons with chronic disorders of the pulmonary or cardiovascular systems, including asthma
- Persons who have required regular medical follow-up or hospitalization during the proceeding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications)
- Residents of nursing homes and other chronic-care facilities that house persons at any age who have chronic medical conditions

Flu vaccine may also be administered to individuals who wish to reduce the chance of becoming infected with influenza.

#### Dosages

At risk children should receive vaccine in an age appropriate dosage (0.25 ml if age 6-35 months or 0.5 ml if age  $\geq$  3 years). Two doses of vaccine are recommended for children less than 9 years of age if they have not been previously vaccinated for influenza. The two doses should be administered at least one month apart and, if possible, the second dose should be given before December. Note: Only one dose is necessary if a child has received one dose of influenza vaccine in any previous year.



### Immunization Coding Quick Reference

Practitioners billing for immunizations to Colorado Medicaid enrolled children (under age 21) when vaccine is available at no-cost through the Vaccines for Children and Colorado Immunization Programs are paid an Administration Recordkeeping and Tracking (ART) fee of \$6.50 for each immunization.

Public health agencies billing for immunizations to Colorado Medicaid enrolled children (under age 21) when vaccine is available at no-cost through the Vaccines for Children and Colorado Immunization Programs are paid an Administration Recordkeeping and Tracking (ART) fee of \$2.00 for each immunization.

These reimbursement rates are represented on the coding quick reference as “\$6.50 / \$2.00”.

CPT codes 90465 – 90474 for vaccine administration are not a benefit.

Medically necessary vaccines that are not provided to practitioners at no cost by the VFC or Colorado Immunization Programs, are reimbursed using the following formula:

Average Wholesale Price (AWP) + 10 percent + \$2.00 for administration

Codes listed as “manually priced” means that there was insufficient AWP information available to establish a reimbursement rate using the formula shown above. Manually priced codes are processed on a per-claim basis by fiscal agent staff to determine the appropriate reimbursement rate for the claim.

#### Key

Ig – immune globulin

INJ – jet injection

SQ – subcutaneous

IM – intramuscular

IV – intravenous

vacc – vaccine

Code	Description	Valid Ages	Maximum Allowable Reimbursement	VFC Program Benefit	Colorado Immunization Program Benefit
<b>Immune Globulins</b>					
90281	Human Ig, IM	All ages	Manually priced		
90283	Human Ig, IV	All ages	Manually priced		
90284	Human Ig, SQ	All ages	Manually priced		
90287	Botulinum antitoxin, equine	All ages	Manually priced		
90288	Botulism Ig, IV	All ages	Manually priced		
90291	CMV Ig, IV	All ages	Manually priced		
90296	Diphtheria antitoxin, equine	All ages	Manually priced		
90371	Hep B Ig, IM	All ages	\$176.31		
90375	Rabies Ig, IM/SQ	All ages	\$101.43		
90376	Rabies Ig, heat-treated, IM/SQ	All ages	\$100.35		
90378	RSV Ig, IM, 50mg (Synagis)	0-2	\$771.40		
90379	RSV Ig, IV	0-2	\$21.26		
90384	Rh Ig, full-dose, IM	All ages	\$120.80		
90385	Rh Ig, mini-dose, IM	All ages	\$54.98		
90386	Rh Ig, IV	All ages	Manually priced		
90389	Tetanus Ig, IM	All ages	Manually priced		

Code	Description	Valid Ages	Maximum Allowable Reimbursement	VFC Program Benefit	Colorado Immunization Program Benefit
90393	Vaccinia Ig, IM	All ages	Manually priced		
90396	Varicella-zoster Ig, IM	All ages	Manually priced		
90399	Unlisted immune globulin	All ages	Manually priced		
<b>Vaccines, Toxoids</b>					
90476	Adenovirus vacc, type 4, oral	All Ages	Manually priced		
90477	Adenovirus vacc, type 7, oral	All ages	Manually priced		
90632	Hep A vacc, adult, IM	19-20	\$6.50 / \$2.00		√
		21+	\$82.70		
90633	Hep A vacc, ped/adol, 2 dose, IM	0-18	\$6.50 / \$2.00	√	
90636	Hep A & Hep B vacc adult, IM	18+	\$110.80		
90645	Hib vacc HbOC, 4 dose, IM	0-4	\$6.50 / \$2.00	√	
90647	Hib vacc, PRP-OMP, 3 dose, IM	0-4	\$6.50 / \$2.00	√	
90648	Hib vacc, PRP-T, 4 dose, IM	0-4	\$6.50 / \$2.00	√	
90649	H papilloma vacc 3 dose, IM	9-20	\$6.50 / \$2.00	√	√
		21-26	\$167.00		
90655	Flu vacc, 6-35 mo, preserv free, IM	0-2	\$6.50 / \$2.00	√	
90656	Flu vacc, 3 yrs +, preserv free, IM	3-20	\$6.50 / \$2.00	√	√
		21+	\$18.57		
90657	Flu vacc, 6-35 mo, IM	0-2	\$6.50 / \$2.00	√	
90658	Flu vacc, 3 yrs +, IM	3-20	\$6.50 / \$2.00	√	√
		21+	\$14.62		
90660	Flu vacc, live, intranasal	2-20	\$6.50 / \$2.00	√	√
90669	Pneum conj vacc, polyval, < 5 yrs, IM	0-4	\$6.50 / \$2.00	√	
90675	Rabies vacc, IM	All ages	\$201.63		
90680	Rotavirus vacc, pentavalent, oral	0-1	\$6.50 / \$2.00	√	
90700	DTaP vacc, < 7 yrs, IM	0-6	\$6.50 / \$2.00	√	
90702	DT vacc, < 7 yrs, IM	0-6	\$6.50 / \$2.00	√	
90703	Tetanus vacc, IM	All ages	\$55.20		
90704	Mumps vacc, SQ	All ages	\$31.24		
90705	Measles vacc, SQ	All ages	\$24.59		
90706	Rubella vacc, SQ	All ages	\$27.16		
90707	MMR vacc, SQ	0-20	\$6.50 / \$2.00	√	√
		21+	\$55.78		
90708	Measles-rubella vacc, SQ	All ages	\$29.84		
90710	MMRV vacc, SQ	1-12	\$6.50 / \$2.00	√	
90713	Poliovirus vacc, IPV, SQ, IM	0-20	\$6.50 / \$2.00	√	√
		21+	\$66.61		

Code	Description	Valid Ages	Maximum Allowable Reimbursement	VFC Program Benefit	Colorado Immunization Program Benefit
90714	Td vacc, 7 yrs +, preserv free, IM	7-20	\$6.50 / \$2.00	√	√
		21+	\$53.81		
90715	Tdap vacc, 7 yrs +, IM	7-20	\$6.50 / \$2.00	√	√
		21+	\$101.54		
90716	Varicella (chicken pox) vacc, SQ	0-20	\$6.50 / \$2.00	√	√
		21+	\$106.98		
90718	Td vacc, 7 yrs +, IM	7-20	\$6.50 / \$2.00	√	√
		21+	\$30.08		
90719	Diphtheria vacc, IM	All ages	\$10.92		
90721	DTaP/Hib vacc, IM	0-6	\$6.50 / \$2.00	√	
90723	DTaP-Hep B-IPV vacc, IM	0-6	\$6.50 / \$2.00	√	
90732	Pneum polysacc vacc, 23 valent, adult or ill pat, SQ/IM	2+	\$79.69		
90733	Meningococcal polysacc vacc, SQ	All ages	\$123.77		
90734	Meningococcal conj vacc, serogrp A, C, Y, W-135, IM	11-18	\$6.50 / \$2.00	√	
		19-25	\$114.75		
90735	Encephalitis vacc, SQ	All ages	\$121.72		
90736	Zoster vacc, SQ	Code 90736 is not a benefit at this time			
90740	Hep B vacc, ill pat, 3 dose, IM	0-20	\$6.50 / \$2.00	√	√
90743	Hep B vacc, adol, 2 dose, IM	11-15	\$6.50 / \$2.00	√	
90744	Hep B vacc, ped/adol, 3 dose, IM	0-18	\$6.50 / \$2.00	√	
90746	Hep B vacc, adult, IM	18-20	\$6.50 / \$2.00		√
		21+	\$76.01		
90747	Hep B vacc, ill pat, 4 dose, IM	0-20	\$6.50 / \$2.00	√	√
90748	Hep B/Hib vacc, IM	0-6	\$6.50 / \$2.00	√	
90749	Unlisted vaccine/toxoid	All ages	Manually priced		
S0195	Pneum conj, polyvalent, IM, 5-9 yrs with no previous dose	5-9	\$6.50 / \$2.00	√	

## Recommended Immunization Schedule for Persons Aged 0–6 Years—UNITED STATES • 2007

Vaccine ▼	Age ►	Birth	1 month	2 months	4 months	6 months	12 months	15 months	18 months	19–23 months	2–3 years	4–6 years
Hepatitis B <sup>1</sup>	HepB	HepB	HepB	<i>see footnote 1</i>	HepB	HepB	HepB	HepB	HepB	HepB Series	HepB Series	HepB Series
Rotavirus <sup>2</sup>			Rota	Rota	Rota							
Diphtheria, Tetanus, Pertussis <sup>3</sup>			DTaP	DTaP	DTaP	DTaP	DTaP	DTaP	DTaP			DTaP
<i>Haemophilus influenzae</i> type b <sup>4</sup>			Hib	Hib	<i>Hib</i> <sup>4</sup>	Hib	Hib	Hib	Hib	Hib		
Pneumococcal <sup>5</sup>			PCV	PCV	PCV	PCV	PCV	PCV	PCV	PCV	PCV	PPV
Inactivated Poliovirus			IPV	IPV	IPV	IPV	IPV	IPV	IPV	IPV	IPV	IPV
Influenza <sup>6</sup>							Influenza (Yearly)	Influenza (Yearly)	Influenza (Yearly)	Influenza (Yearly)	Influenza (Yearly)	Influenza (Yearly)
Measles, Mumps, Rubella <sup>7</sup>							MMR	MMR	MMR	MMR	MMR	MMR
Varicella <sup>8</sup>							Varicella	Varicella	Varicella	Varicella	Varicella	Varicella
Hepatitis A <sup>9</sup>							HepA (2 doses)	HepA (2 doses)	HepA (2 doses)	HepA Series	HepA Series	HepA Series
Meningococcal <sup>10</sup>											MPSV4	MPSV4

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 0–6 years. Additional information is available at <http://www.cdc.gov/nip/recs/child-schedule.htm>. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and

other components of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

### 1. Hepatitis B vaccine (HepB). (Minimum age: birth)

#### At birth:

- Administer monovalent HepB to all newborns before hospital discharge.
- If mother is hepatitis surface antigen (HBsAg)-positive, administer HepB and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth.
- If mother's HBsAg status is unknown, administer HepB within 12 hours of birth. Determine the HBsAg status as soon as possible and if HBsAg-positive, administer HBIG (no later than age 1 week).
- If mother is HBsAg-negative, the birth dose can only be delayed with physician's order and mother's negative HBsAg laboratory report documented in the infant's medical record.

#### After the birth dose:

- The HepB series should be completed with either monovalent HepB or a combination vaccine containing HepB. The second dose should be administered at age 1–2 months. The final dose should be administered at age ≥24 weeks. Infants born to HBsAg-positive mothers should be tested for HBsAg and antibody to HBsAg after completion of ≥3 doses of a licensed HepB series, at age 9–18 months (generally at the next well-child visit).

#### 4-month dose:

- It is permissible to administer 4 doses of HepB when combination vaccines are administered after the birth dose. If monovalent HepB is used for doses after the birth dose, a dose at age 4 months is not needed.

### 2. Rotavirus vaccine (Rota). (Minimum age: 6 weeks)

- Administer the first dose at age 6–12 weeks. Do not start the series later than age 12 weeks.
- Administer the final dose in the series by age 32 weeks. Do not administer a dose later than age 32 weeks.
- Data on safety and efficacy outside of these age ranges are insufficient.

### 3. Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP). (Minimum age: 6 weeks)

- The fourth dose of DTaP may be administered as early as age 12 months, provided 6 months have elapsed since the third dose.
- Administer the final dose in the series at age 4–6 years.

### 4. *Haemophilus influenzae* type b conjugate vaccine (Hib). (Minimum age: 6 weeks)

- If PRP-OMP (PedvaxHIB\* or ComVax\* [Merck]) is administered at ages 2 and 4 months, a dose at age 6 months is not required.
- TriHibit\* (DTaP/Hib) combination products should not be used for primary immunization but can be used as boosters following any Hib vaccine in children aged ≥12 months.

### 5. Pneumococcal vaccine. (Minimum age: 6 weeks for pneumococcal conjugate vaccine [PCV]; 2 years for pneumococcal polysaccharide vaccine [PPV])

- Administer PCV at ages 24–59 months in certain high-risk groups. Administer PPV to children aged ≥2 years in certain high-risk groups. See *MMWR* 2000;49(No. RR-9):1–35.

### 6. Influenza vaccine. (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])

- All children aged 6–59 months and close contacts of all children aged 0–59 months are recommended to receive influenza vaccine.
- Influenza vaccine is recommended annually for children aged ≥59 months with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See *MMWR* 2006;55(No. RR-10):1–41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children receiving TIV should receive 0.25 mL if aged 6–35 months or 0.5 mL if aged ≥3 years.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

### 7. Measles, mumps, and rubella vaccine (MMR). (Minimum age: 12 months)

- Administer the second dose of MMR at age 4–6 years. MMR may be administered before age 4–6 years, provided ≥4 weeks have elapsed since the first dose and both doses are administered at age ≥12 months.

### 8. Varicella vaccine. (Minimum age: 12 months)

- Administer the second dose of varicella vaccine at age 4–6 years. Varicella vaccine may be administered before age 4–6 years, provided that ≥3 months have elapsed since the first dose and both doses are administered at age ≥12 months. If second dose was administered ≥28 days following the first dose, the second dose does not need to be repeated.

### 9. Hepatitis A vaccine (HepA). (Minimum age: 12 months)

- HepA is recommended for all children aged 1 year (i.e., aged 12–23 months). The 2 doses in the series should be administered at least 6 months apart.
- Children not fully vaccinated by age 2 years can be vaccinated at subsequent visits.
- HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.

### 10. Meningococcal polysaccharide vaccine (MPSV4). (Minimum age: 2 years)

- Administer MPSV4 to children aged 2–10 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See *MMWR* 2006;54(No. RR-7):1–21.

The Recommended Immunization Schedules for Persons Aged 0–18 Years are approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/nip/acip>), the American Academy of Pediatrics (<http://www.aap.org>), and the American Academy of Family Physicians (<http://www.aafp.org>).

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## Recommended Immunization Schedule for Persons Aged 7–18 Years—UNITED STATES • 2007

Vaccine ▼	Age ▶	7–10 years	11–12 YEARS	13–14 years	15 years	16–18 years
Tetanus, Diphtheria, Pertussis <sup>1</sup>	see footnote 1		Tdap			Tdap
Human Papillomavirus <sup>2</sup>	see footnote 2		HPV (3 doses)			HPV Series
Meningococcal <sup>3</sup>	MPSV4		MCV4		MCV4 <sup>4</sup>	MCV4
Pneumococcal <sup>4</sup>			PPV			
Influenza <sup>5</sup>			Influenza (Yearly)			
Hepatitis A <sup>6</sup>			HepA Series			
Hepatitis B <sup>7</sup>			HepB Series			
Inactivated Poliovirus <sup>8</sup>			IPV Series			
Measles, Mumps, Rubella <sup>9</sup>			MMR Series			
Varicella <sup>10</sup>			Varicella Series			

Range of recommended ages

Catch-up immunization

Certain high-risk groups

This schedule indicates the recommended ages for routine administration of currently licensed childhood vaccines, as of December 1, 2006, for children aged 7–18 years. Additional information is available at <http://www.cdc.gov/nip/recs/child-schedule.htm>. Any dose not administered at the recommended age should be administered at any subsequent visit, when indicated and feasible. Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components

of the vaccine are not contraindicated and if approved by the Food and Drug Administration for that dose of the series. Providers should consult the respective Advisory Committee on Immunization Practices statement for detailed recommendations. Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form is available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

**1. Tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).**

(Minimum age: 10 years for BOOSTRIX<sup>®</sup> and 11 years for ADACEL<sup>™</sup>)

- Administer at age 11–12 years for those who have completed the recommended childhood DTP/DaP vaccination series and have not received a tetanus and diphtheria toxoids vaccine (Td) booster dose.
- Adolescents aged 13–18 years who missed the 11–12 year Td/Tdap booster dose should also receive a single dose of Tdap if they have completed the recommended childhood DTP/DaP vaccination series.

**2. Human papillomavirus vaccine (HPV).** (Minimum age: 9 years)

- Administer the first dose of the HPV vaccine series to females at age 11–12 years.
- Administer the second dose 2 months after the first dose and the third dose 6 months after the first dose.
- Administer the HPV vaccine series to females at age 13–18 years if not previously vaccinated.

**3. Meningococcal vaccine.** (Minimum age: 11 years for meningococcal conjugate vaccine [MCV4]; 2 years for meningococcal polysaccharide vaccine [MPSV4])

- Administer MCV4 at age 11–12 years and to previously unvaccinated adolescents at high school entry (at approximately age 15 years).
- Administer MCV4 to previously unvaccinated college freshmen living in dormitories; MPSV4 is an acceptable alternative.
- Vaccination against invasive meningococcal disease is recommended for children and adolescents aged ≥2 years with terminal complement deficiencies or anatomic or functional asplenia and certain other high-risk groups. See MMWR 2005;54(No. RR-7):1–21. Use MPSV4 for children aged 2–10 years and MCV4 or MPSV4 for older children.

**4. Pneumococcal polysaccharide vaccine (PPV).** (Minimum age: 2 years)

- Administer for certain high-risk groups. See MMWR 1997;46(No. RR-8):1–24, and MMWR 2000;49(No. RR-9):1–35.

**5. Influenza vaccine.** (Minimum age: 6 months for trivalent inactivated influenza vaccine [TIV]; 5 years for live, attenuated influenza vaccine [LAIV])

- Influenza vaccine is recommended annually for persons with certain risk factors, health-care workers, and other persons (including household members) in close contact with persons in groups at high risk. See MMWR 2006;55(No. RR-10):1–41.
- For healthy persons aged 5–49 years, LAIV may be used as an alternative to TIV.
- Children aged <9 years who are receiving influenza vaccine for the first time should receive 2 doses (separated by ≥4 weeks for TIV and ≥6 weeks for LAIV).

**6. Hepatitis A vaccine (HepA).** (Minimum age: 12 months)

- The 2 doses in the series should be administered at least 6 months apart.
- HepA is recommended for certain other groups of children, including in areas where vaccination programs target older children. See MMWR 2006;55(No. RR-7):1–23.

**7. Hepatitis B vaccine (HepB).** (Minimum age: birth)

- Administer the 3-dose series to those who were not previously vaccinated.
- A 2-dose series of Recombivax HB<sup>®</sup> is licensed for children aged 11–15 years.

**8. Inactivated poliovirus vaccine (IPV).** (Minimum age: 6 weeks)

- For children who received an all-IPV or all-oral poliovirus (OPV) series, a fourth dose is not necessary if the third dose was administered at age ≥4 years.
- If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

**9. Measles, mumps, and rubella vaccine (MMR).** (Minimum age: 12 months)

- If not previously vaccinated, administer 2 doses of MMR during any visit, with ≥4 weeks between the doses.

**10. Varicella vaccine.** (Minimum age: 12 months)

- Administer 2 doses of varicella vaccine to persons without evidence of immunity.
- Administer 2 doses of varicella vaccine to persons aged <13 years at least 3 months apart. Do not repeat the second dose, if administered ≥28 days after the first dose.
- Administer 2 doses of varicella vaccine to persons aged ≥13 years at least 4 weeks apart.

The Recommended Immunization Schedules for Persons Aged 0–18 Years are approved by the Advisory Committee on Immunization Practices (<http://www.cdc.gov/nip/acip>), the American Academy of Pediatrics (<http://www.aap.org>), and the American Academy of Family Physicians (<http://www.aafp.org>).

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# Catch-up Immunization Schedule

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## for Persons Aged 4 Months–18 Years Who Start Late or Who Are More Than 1 Month Behind

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age.

CATCH-UP SCHEDULE FOR PERSONS AGED 4 MONTHS–6 YEARS					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B <sup>1</sup>	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Rotavirus <sup>2</sup>	6 wks	4 weeks	4 weeks		
Diphtheria, Tetanus, Pertussis <sup>3</sup>	6 wks	4 weeks	4 weeks	6 months	6 months <sup>2</sup>
<i>Haemophilus influenzae</i> type b <sup>4</sup>	6 wks	4 weeks if first dose administered at age <12 months 8 weeks (as final dose) if first dose administered at age 12–14 months No further doses needed if first dose administered at age ≥15 months	4 weeks <sup>4</sup> if current age <12 months 8 weeks (as final dose) <sup>4</sup> if current age ≥12 months and second dose administered at age <15 months No further doses needed if previous dose administered at age ≥15 months	8 weeks (as final dose) This dose only necessary for children aged 12 months–5 years who received 3 doses before age 12 months	
Pneumococcal <sup>5</sup>	6 wks	4 weeks if first dose administered at age <12 months and current age <24 months 8 weeks (as final dose) if first dose administered at age ≥12 months or current age 24–59 months No further doses needed for healthy children if first dose administered at age ≥24 months	4 weeks if current age <12 months 8 weeks (as final dose) if current age ≥12 months No further doses needed for healthy children if previous dose administered at age ≥24 months	8 weeks (as final dose) This dose only necessary for children aged 12 months–5 years who received 3 doses before age 12 months	
Inactivated Poliovirus <sup>6</sup>	6 wks	4 weeks	4 weeks	4 weeks <sup>6</sup>	
Measles, Mumps, Rubella <sup>7</sup>	12 mos	4 weeks			
Varicella <sup>8</sup>	12 mos	3 months			
Hepatitis A <sup>9</sup>	12 mos	6 months			

  

CATCH-UP SCHEDULE FOR PERSONS AGED 7–18 YEARS					
Tetanus, Diphtheria/ Tetanus, Diphtheria, Pertussis <sup>10</sup>	7 yrs <sup>10</sup>	4 weeks	8 weeks if first dose administered at age <12 months 6 months if first dose administered at age ≥12 months	6 months if first dose administered at age <12 months	
Human Papillomavirus <sup>11</sup>	9 yrs	4 weeks	12 weeks		
Hepatitis A <sup>9</sup>	12 mos	6 months			
Hepatitis B <sup>1</sup>	Birth	4 weeks	8 weeks (and 16 weeks after first dose)		
Inactivated Poliovirus <sup>6</sup>	6 wks	4 weeks	4 weeks	4 weeks <sup>6</sup>	
Measles, Mumps, Rubella <sup>7</sup>	12 mos	4 weeks			
Varicella <sup>8</sup>	12 mos	4 weeks if first dose administered at age ≥13 years 3 months if first dose administered at age <13 years			

- Hepatitis B vaccine (HepB).** (Minimum age: birth)
  - Administer the 3-dose series to those who were not previously vaccinated.
  - A 2-dose series of Recombivax HB<sup>®</sup> is licensed for children aged 11–15 years.
- Rotavirus vaccine (Rota).** (Minimum age: 6 weeks)
  - Do not start the series later than age 12 weeks.
  - Administer the final dose in the series by age 32 weeks. Do not administer a dose later than age 32 weeks.
  - Data on safety and efficacy outside of these age ranges are insufficient.
- Diphtheria and tetanus toxoids and acellular pertussis vaccine (DTaP).** (Minimum age: 6 weeks)
  - The fifth dose is not necessary if the fourth dose was administered at age ≥4 years.
  - DTaP is not indicated for persons aged ≥7 years.
- Haemophilus influenzae* type b conjugate vaccine (Hib).** (Minimum age: 6 weeks)
  - Vaccine is not generally recommended for children aged ≥5 years.
  - If current age <12 months and the first 2 doses were PRP-OMP (PedvaxHIB<sup>®</sup> or ComVax<sup>®</sup> [Merck]), the third (and final) dose should be administered at age 12–15 months and at least 8 weeks after the second dose.
  - If first dose was administered at age 7–11 months, administer 2 doses separated by 4 weeks plus a booster at age 12–15 months.
- Pneumococcal conjugate vaccine (PCV).** (Minimum age: 6 weeks)
  - Vaccine is not generally recommended for children aged ≥5 years.
- Inactivated poliovirus vaccine (IPV).** (Minimum age: 6 weeks)
  - For children who received an aIPV or aI-oral poliovirus (OPV) series, a fourth dose is not necessary if third dose was administered at age ≥4 years.
  - If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.
- Measles, mumps, and rubella vaccine (MMR).** (Minimum age: 12 months)
  - The second dose of MMR is recommended routinely at age 4–6 years but may be administered earlier if desired.
  - If not previously vaccinated, administer 2 doses of MMR during any visit with ≥4 weeks between the doses.
- Varicella vaccine.** (Minimum age: 12 months)
  - The second dose of varicella vaccine is recommended routinely at age 4–6 years but may be administered earlier if desired.
  - Do not repeat the second dose in persons aged <13 years if administered ≥28 days after the first dose.
- Hepatitis A vaccine (HepA).** (Minimum age: 12 months)
  - HepA is recommended for certain groups of children, including in areas where vaccination programs target older children. See *MMWR* 2006;55(No. RR-7):1–23.
- Tetanus and diphtheria toxoids vaccine (Td) and tetanus and diphtheria toxoids and acellular pertussis vaccine (Tdap).** (Minimum ages: 7 years for Td, 10 years for BOOSTRIX<sup>®</sup>, and 11 years for ADACEL<sup>™</sup>)
  - Tdap should be substituted for a single dose of Td in the primary catch-up series or as a booster if age appropriate; use Td for other doses.
  - A 5-year interval from the last Td dose is encouraged when Tdap is used as a booster dose. A booster (fourth) dose is needed if any of the previous doses were administered at age <12 months. Refer to ACIP recommendations for further information. See *MMWR* 2006;55(No. RR-3).
- Human papillomavirus vaccine (HPV).** (Minimum age: 9 years)
  - Administer the HPV vaccine series to females at age 13–18 years if not previously vaccinated.

Information about reporting reactions after immunization is available online at <http://www.vaers.hhs.gov> or by telephone via the 24-hour national toll-free information line 800-822-7967. Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for immunization, is available from the National Center for Immunization and Respiratory Diseases at <http://www.cdc.gov/nip/default.htm> or telephone, 800-CDC-INFO (800-232-4636).

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## Recommended Adult Immunization Schedule — United States, October 2007–September 2008

Weekly

October 19, 2007 / Vol. 56 / No. 41

The Advisory Committee on Immunization Practices (ACIP) annually reviews the recommended Adult Immunization Schedule to ensure that the schedule reflects current recommendations for the licensed vaccines. In June 2007, ACIP approved the Adult Immunization Schedule for October 2007–September 2008. Additional information is available as follows: schedule (in English and Spanish) at <http://www.cdc.gov/vaccines/recs/schedules/adult-schedule.htm>; adult vaccinations at <http://www.cdc.gov/vaccines/default.htm>; ACIP statements for specific vaccines at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>; and reporting adverse events at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

### Changes for October 2007–September 2008

#### Age-Based Schedule (Figure 1)

- The yellow bar for varicella vaccine has been extended through all age groups, indicating that the vaccine is recommended for all adults without evidence of immunity to varicella.
- Zoster vaccine has been added, with a yellow bar indicating that the vaccine is recommended for persons aged  $\geq 60$  years.

#### Medical/Other Indications Schedule (Figure 2)

- The title has been changed to “Vaccines that might be indicated for adults based on medical and other indications,” indicating that not all of the vaccines are recommended based on medical indications.
- The word “contraindicated” has been added to the red bars and removed from the legend.
- The “immunocompromising conditions” column heading has been shortened by removing the list of conditions.
- The “human immunodeficiency virus (HIV) infection” column has been moved next to the “immunocompromising conditions” column.
- The HIV column has been split into CD4+ T lymphocyte counts of  $<200$  cells/ $\mu$ L and  $\geq 200$  cells/ $\mu$ L.
- The indication “recipients of clotting factor concentrates” has been removed from the column heading “chronic liver disease” because only one vaccine has this recommendation. The indication remains in the hepatitis A vaccine footnote.
- The varicella vaccine yellow bar has been extended to include persons infected with HIV who have CD4+ T lymphocyte counts of  $\geq 200$  cells/ $\mu$ L (1).

- The influenza vaccine yellow bar for “health-care personnel” indicates that health-care personnel can receive either trivalent inactivated influenza vaccine (TIV) or live, attenuated influenza vaccine (LAIV).
- The yellow bar for influenza vaccine has been extended to include persons in the “asplenia” risk group.
- The bar for meningococcal vaccine has been revised to indicate that 1 or more doses might be indicated.
- Zoster vaccine has been added to the schedule with a yellow bar to indicate that the vaccine is recommended for all indications except pregnancy, immunocompromising conditions, and HIV. A red bar, indicating a contraindication, has been inserted for pregnancy, immunocompromising conditions, and HIV infection with a CD4+ T lymphocyte count of  $<200$  cells/ $\mu$ L.

#### Footnotes (Figures 1 and 2)

- Text for vaccine contraindications in pregnancy has been removed from the footnotes of human papillomavirus (HPV) (#2); measles, mumps, rubella (MMR) (#3); and varicella (#4) to be consistent with the intent of the footnotes to summarize the indications for vaccine use. Pregnancy contraindications are indicated with a red bar.
- The HPV footnote (#2) has been revised to clarify evidence of prior infection, clarify that HPV vaccine is not specifically indicated based on medical conditions, and indicate that efficacy and immunogenicity might be lower in persons with certain medical conditions.
- The varicella footnote (#4) has been revised to clarify that birth before 1980 for immunocompromised persons is not evidence of immunity and to add a requirement for evidence of immunity.
- The pneumococcal polysaccharide vaccine (PPV) footnote (#6) has been revised by adding chronic alcoholism and cerebrospinal fluid leaks and deleting the immunocompromising conditions.
- The hepatitis B footnote (#9) has been revised by removing persons who receive clotting factor concentrates as a risk group and by clarifying the special formulations dose.
- The meningococcal vaccine footnote (#10) has been revised to clarify that persons who remain at increased risk for infection might be indicated for revaccination.
- A footnote (#11) has been added to reflect ACIP recommendations for herpes zoster vaccination for persons aged  $\geq 60$  years.
- A footnote (#13) has been added to provide a reference for vaccines in persons with immunocompromising conditions.

#### Reference

1. CDC. Prevention of varicella: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2007; 56(No. RR-4).

The Recommended Adult Immunization Schedule has been approved by the Advisory Committee on Immunization Practices, the American Academy of Family Physicians, the American College of Obstetricians and Gynecologists, and the American College of Physicians. The standard MMWR footnote format has been modified for publication of this schedule.

Suggested citation: Centers for Disease Control and Prevention. Recommended Adult Immunization Schedule—United States, October 2007–September 2008. MMWR 2007;56:Q1–Q4.

FIGURE 1. Recommended adult immunization schedule, by vaccine and age group — United States, October 2007–September 2008

Vaccine	Age group (yrs)		
	19–49	50–64	≥65
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>1*</sup>	1-dose Td booster every 10 yrs Substitute 1 dose of Tdap for Td		
Human papillomavirus (HPV) <sup>2*</sup>	3 doses (females) (0, 2, 6 mos)		
Measles, mumps, rubella (MMR) <sup>3*</sup>	1 or 2 doses	1 dose	
Varicella <sup>4*</sup>	2 doses (0, 4–8 wks)		
Influenza <sup>5*</sup>	1 dose annually	1 dose annually	
Pneumococcal (polysaccharide) <sup>6,7</sup>	1–2 doses		1 dose
Hepatitis A <sup>8*</sup>	2 doses (0, 6–12 mos, or 0, 6–18 mos)		
Hepatitis B <sup>9*</sup>	3 doses (0, 1–2, 4–6 mos)		
Meningococcal <sup>10*</sup>	1 or more doses		
Zoster <sup>11</sup>			1 dose

\* Covered by the Vaccine Injury Compensation Program.   For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)   Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

**NOTE: These recommendations must be read along with the footnotes, which are on pages Q2–Q4 of this schedule. Approved by the Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians, the American College of Obstetricians and Gynecologists, and the American College of Physicians. Complete statements from ACIP are available at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>.**

**1. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination**

Tdap should replace a single dose of Td for adults aged <65 years who have not previously received a dose of Tdap. Only one of two Tdap products (Adacel<sup>®</sup> [Sanofi Pasteur]) is licensed for use in adults.

Adults with uncertain histories of a complete primary vaccination series with tetanus and diphtheria toxoid-containing vaccines should begin or complete a primary vaccination series. A primary series for adults is 3 doses of tetanus and diphtheria toxoid-containing vaccines; administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second. However, Tdap can substitute for any one of the doses of Td in the 3-dose primary series. The booster dose of tetanus and diphtheria toxoid-containing vaccine should be administered to adults who have completed a primary series and if the last vaccination was received ≥10 years previously. Tdap or Td vaccine may be used, as indicated.

If the person is pregnant and received the last Td vaccination ≥10 years previously, administer Td during the second or third trimester; if the person received the last Td vaccination in <10 years, administer Tdap during the immediate postpartum period. A one-time administration of 1 dose of Tdap with an interval as short as 2 years from a previous Td vaccination is recommended for postpartum women, close contacts of infants aged <12 months, and all health-care workers with direct patient contact. In certain situations, Td can be deferred during pregnancy and Tdap substituted in the immediate postpartum period, or Tdap can be administered instead of Td to a pregnant woman after an informed discussion with the woman.

Consult the ACIP statement for recommendations for administering Td as prophylaxis in wound management.

**2. Human papillomavirus (HPV) vaccination**

HPV vaccination is recommended for all females aged ≤26 years who have not completed the vaccine series. History of genital warts, abnormal Papanicolaou test, or positive HPV DNA test is not evidence

of prior infection with all vaccine HPV types; HPV vaccination is still recommended for these persons.

Ideally, vaccine should be administered before potential exposure to HPV through sexual activity; however, females who are sexually active should still be vaccinated. Sexually active females who have not been infected with any of the HPV vaccine types receive the full benefit of the vaccination. Vaccination is less beneficial for females who have already been infected with one or more of the HPV vaccine types.

A complete series consists of 3 doses. The second dose should be administered 2 months after the first dose; the third dose should be administered 6 months after the first dose.

Although HPV vaccination is not specifically recommended for females with the medical indications described in Figure 2, “Vaccines that might be indicated for adults based on medical and other indications,” it is not a live-virus vaccine and can be administered. However, immune response and vaccine efficacy might be less than in persons who do not have the medical indications described or who are immunocompetent.

**3. Measles, mumps, rubella (MMR) vaccination**

*Measles component:* adults born before 1957 can be considered immune to measles. Adults born during or after 1957 should receive ≥1 dose of MMR unless they have a medical contraindication, documentation of ≥1 dose, history of measles based on health-care provider diagnosis, or laboratory evidence of immunity.

A second dose of MMR is recommended for adults who 1) have been recently exposed to measles or are in an outbreak setting; 2) have been previously vaccinated with killed measles vaccine; 3) have been vaccinated with an unknown type of measles vaccine during 1963–1967; 4) are students in postsecondary educational institutions; 5) work in a health-care facility; or 6) plan to travel internationally.

*Mumps component:* adults born before 1957 can generally be



**FIGURE 2. Vaccines that might be indicated for adults based on medical and other indications — United States, October 2007–September 2008**

Vaccine	Pregnancy	Indication						
		Immuno-compromising conditions (excluding human immunodeficiency virus [HIV]), medications, radiation <sup>13</sup>	HIV infection <sup>3,12,13</sup> CD4+ T lymphocyte count		Diabetes, heart disease, chronic pulmonary disease, chronic alcoholism	Asplenia <sup>12</sup> (including elective splenectomy and terminal complement deficiencies)	Chronic liver disease	Kidney failure, end-stage renal disease, receipt of hemodialysis
			<200 cells/μL	≥200 cells/μL				
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>1*</sup>		1 dose Td booster every 10 yrs Substitute 1 dose of Tdap for Td						
Human papillomavirus (HPV) <sup>2*</sup>		3 doses for females through age 26 yrs (0, 2, 6 mos)						
Measles, mumps, rubella (MMR) <sup>3*</sup>	Contraindicated	1 or 2 doses						
Varicella <sup>4*</sup>	Contraindicated	2 doses (0, 4–8 wks)						
Influenza <sup>5*</sup>		1 dose TIV annually 1 dose TIV or LAIV annually						
Pneumococcal (polysaccharide) <sup>6,7</sup>		1–2 doses						
Hepatitis A <sup>8*</sup>		2 doses (0, 6–12 mos, or 0, 6–18 mos)						
Hepatitis B <sup>9*</sup>		3 doses (0, 1–2, 4–6 mos)						
Meningococcal <sup>10*</sup>		1 or more doses						
Zoster <sup>11</sup>	Contraindicated	1 dose						

\* Covered by the Vaccine Injury Compensation Program.   For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)   Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

considered immune to mumps. Adults born during or after 1957 should receive 1 dose of MMR unless they have a medical contraindication, history of mumps based on health-care provider diagnosis, or laboratory evidence of immunity.

A second dose of MMR is recommended for adults who 1) are in an age group that is affected during a mumps outbreak; 2) are students in postsecondary educational institutions; 3) work in a health-care facility; or 4) plan to travel internationally. For unvaccinated health-care workers born before 1957 who do not have other evidence of mumps immunity, consider administering 1 dose on a routine basis and strongly consider administering a second dose during an outbreak.

**Rubella component:** administer 1 dose of MMR vaccine to women whose rubella vaccination history is unreliable or who lack laboratory evidence of immunity. For women of childbearing age, regardless of birth year, routinely determine rubella immunity and counsel women regarding congenital rubella syndrome. Women who do not have evidence of immunity should receive MMR vaccine on completion or termination of pregnancy and before discharge from the health-care facility.

**4. Varicella vaccination**

All adults without evidence of immunity to varicella should receive 2 doses of single-antigen varicella vaccine unless they have a medical contraindication. Special consideration should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., health-care personnel and family contacts of immunocompromised persons) or 2) are at high risk for exposure or transmission (e.g., teachers; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).

Evidence of immunity to varicella in adults includes any of the

following: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.-born before 1980 (although for health-care personnel and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a health-care provider (for a patient reporting a history of or presenting with an atypical case, a mild case, or both, health-care providers should seek either an epidemiologic link with a typical varicella case or to a laboratory-confirmed case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on health-care provider diagnosis; or 5) laboratory evidence of immunity or laboratory confirmation of disease.

Assess pregnant women for evidence of varicella immunity. Women who do not have evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the health-care facility. The second dose should be administered 4–8 weeks after the first dose.

**5. Influenza vaccination**

**Medical indications:** chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus, renal or hepatic dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or human immunodeficiency virus [HIV]); any condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration (e.g., cognitive dysfunction, spinal cord injury, or seizure disorder or other neuromuscular disorder); and pregnancy during the influenza season. No data exist on the risk for severe or complicated influenza disease among persons with asplenia; however, influenza is a risk factor for secondary bacterial infections that can cause severe disease among persons with asplenia.

**Occupational indications:** health-care personnel and employees of long-term-care and assisted-living facilities.

**Other indications:** residents of nursing homes and other long-term-care and assisted-living facilities; persons likely to transmit influenza to persons at high risk (e.g., in-home household contacts and caregivers of children aged 0–59 months, or persons of all ages with high-risk conditions); and anyone who would like to be vaccinated. Healthy, nonpregnant adults aged  $\leq 49$  years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special care units can receive either intranasally administered live, attenuated influenza vaccine (FluMist<sup>®</sup>) or inactivated vaccine. Other persons should receive the inactivated vaccine.

#### 6. Pneumococcal polysaccharide vaccination

**Medical indications:** chronic pulmonary disease (excluding asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver diseases, including liver disease as a result of alcohol abuse (e.g., cirrhosis); chronic alcoholism, chronic renal failure, or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); immunosuppressive conditions; and cochlear implants and cerebrospinal fluid leaks. Vaccinate as close to HIV diagnosis as possible.

**Other indications:** Alaska Natives and certain American Indian populations and residents of nursing homes or other long-term-care facilities.

#### 7. Revaccination with pneumococcal polysaccharide vaccine

One-time revaccination after 5 years for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); or immunosuppressive conditions. For persons aged  $\geq 65$  years, one-time revaccination if they were vaccinated  $\geq 5$  years previously and were aged  $< 65$  years at the time of primary vaccination.

#### 8. Hepatitis A vaccination

**Medical indications:** persons with chronic liver disease and persons who receive clotting factor concentrates.

**Behavioral indications:** men who have sex with men and persons who use illegal drugs.

**Occupational indications:** persons working with hepatitis A virus (HAV)-infected primates or with HAV in a research laboratory setting.

**Other indications:** persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A (a list of countries is available at <http://www.cdc.gov/travel/content/diseases.aspx>) and any person seeking protection from HAV infection.

Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6–12 months (Havrix<sup>®</sup>), or 0 and 6–18 months (Vaqta<sup>®</sup>). If the combined hepatitis A and hepatitis B vaccine (Twinrix<sup>®</sup>) is used, administer 3 doses at 0, 1, and 6 months.

#### 9. Hepatitis B vaccination

**Medical indications:** persons with end-stage renal disease, including patients receiving hemodialysis; persons seeking evaluation or treatment for a sexually transmitted disease (STD); persons with HIV infection; and persons with chronic liver disease.

**Occupational indications:** health-care personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids.

**Behavioral indications:** sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than one sex partner during the previous 6 months); current or recent injection-drug users; and men who have sex with men.

**Other indications:** household contacts and sex partners of persons with chronic hepatitis B virus (HBV) infection; clients and staff members of institutions for persons with developmental disabilities; international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at <http://www.cdc.gov/travel/content/diseases.aspx>); and any adult seeking protection from HBV infection.

Settings where hepatitis B vaccination is recommended for all adults: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; health-care settings targeting services to injection-drug users or men who have sex with men; correctional facilities; end-stage renal disease programs and facilities for chronic hemodialysis patients; and institutions and nonresidential day care facilities for persons with developmental disabilities.

**Special formulation indications:** for adult patients receiving hemodialysis and other immunocompromised adults, 1 dose of 40  $\mu\text{g}/\text{mL}$  (Recombivax HB<sup>®</sup>) or 2 doses of 20  $\mu\text{g}/\text{mL}$  (Engerix-B<sup>®</sup>), administered simultaneously.

#### 10. Meningococcal vaccination

**Medical indications:** adults with anatomic or functional asplenia or terminal complement component deficiencies.

**Other indications:** first-year college students living in dormitories; microbiologists who are routinely exposed to isolates of *Neisseria meningitidis*; military recruits; and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic (e.g., the “meningitis belt” of sub-Saharan Africa during the dry season [December–June]), particularly if their contact with local populations will be prolonged. Vaccination is required by the government of Saudi Arabia for all travelers to Mecca during the annual Hajj.

Meningococcal conjugate vaccine is preferred for adults with any of the preceding indications who are aged  $\leq 55$  years, although meningococcal polysaccharide vaccine (MPSV4) is an acceptable alternative. Revaccination after 3–5 years might be indicated for adults previously vaccinated with MPSV4 who remain at increased risk for infection (e.g., persons residing in areas in which disease is epidemic).

#### 11. Herpes zoster vaccination

A single dose of zoster vaccine is recommended for adults aged  $\geq 60$  years regardless of whether they report a prior episode of herpes zoster. Persons with chronic medical conditions may be vaccinated unless a contraindication or precaution exists for their condition.

#### 12. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccine may be used

Hib conjugate vaccines are licensed for children aged 6 weeks–71 months. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults with the chronic conditions associated with an increased risk for Hib disease. However, studies suggest good immunogenicity in patients who have sickle cell disease, leukemia, or HIV infection or who have had splenectomies; administering vaccine to these patients is not contraindicated.

#### 13. Immunocompromising conditions

Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, and influenza [trivalent inactivated influenza vaccine]) and live vaccines generally are avoided in persons with immune deficiencies or immune suppressive conditions. Information on specific conditions is available at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>.

This schedule indicates the recommended age groups and medical indications for routine administration of currently licensed vaccines for persons aged  $\geq 19$  years, as of October 1, 2007. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. For detailed recommendations on all vaccines, including those used primarily for travelers or those issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (available at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>).

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at <http://www.hrsa.gov/vaccinecompensation> or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.